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MAY 03 2004



OFFICE OF PETITIONS

1600

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/933,915A

DATE: 04/21/2004

TIME: 07:09:44

Input Set : A:\07917-120001.txt

Output Set: N:\CRF4\04212004\I933915A.raw

4 <110> APPLICANT: Odgren, Paul R.  
 5 Marks, Sandy C.  
 6 Choi, Yongwon  
 8 <120> TITLE OF INVENTION: TRANCE REGULATION OF CHONDROCYTE  
 9 DIFFERENTIATION  
 11 <130> FILE REFERENCE: 07917-120001  
 13 <140> CURRENT APPLICATION NUMBER: 09/933,915A  
 14 <141> CURRENT FILING DATE: 2001-08-20  
 16 <150> PRIOR APPLICATION NUMBER: 60/226,197  
 17 <151> PRIOR FILING DATE: 2000-08-18  
 19 <160> NUMBER OF SEQ ID NOS: 19  
 21 <170> SOFTWARE: FastSEQ for Windows Version 4.0  
 23 <210> SEQ ID NO: 1  
 24 <211> LENGTH: 2226  
 25 <212> TYPE: DNA  
 26 <213> ORGANISM: Homo sapiens  
 28 <220> FEATURE:  
 29 <221> NAME/KEY: CDS  
 30 <222> LOCATION: (157)...(1107)  
 32 <400> SEQUENCE: 1  
 33 ctcgacccac gcgtccgcgc gccccaggag ccaaagccgg gctccaagtc ggcgc(ccac 60  
 34 gtcgaggctc cgccgcagcc tccggagttg gccgcagaca agaaggggag ggagcgggag 120  
 35 agggaggaga gctccgaagc gagagggccg agcgcc atg cgc cgc gcc agc aga 174  
 36 Met Arg Arg Ala Ser Arg  
 37 1 5  
 39 gac tac acc aag tac ctg cgt ggc tcg gag gag atg ggc ggc ccc 222  
 40 Asp Tyr Thr Lys Tyr Leu Arg Gly Ser Glu Glu Met Gly Gly Pro  
 41 10 15 20  
 43 gga gcc ccg cac gag ggc ccc ctg cac gcc ccg ccg cct ggc ccg 270  
 44 Gly Ala Pro His Glu Gly Pro Leu His Ala Pro Pro Pro Ala Pro  
 45 25 30 35  
 47 cac cag ccc gcc tcc cgc tcc atg ttc gtg gcc ctc ctg ggg 318  
 48 His Gln Pro Pro Ala Ala Ser Arg Ser Met Phe Val Ala Leu Leu Gly  
 49 40 45 50  
 51 ctg ggg ctg ggc cag gtt gtc tgc agc gtc gcc ctg ttc tat ttc 366  
 52 Leu Gly Leu Gly Gln Val Val Cys Ser Val Ala Leu Phe Phe Tyr Phe  
 53 55 60 65 70  
 55 aga gcg cag atg gat cct aat aga ata tca gaa gat ggc act cac tgc 414  
 56 Arg Ala Gln Met Asp Pro Asn Arg Ile Ser Glu Asp Gly Thr His Cys  
 57 75 80 85  
 59 att tat aga att ttg aga ctc cat gaa aat gca gat ttt caa gac aca 462  
 60 Ile Tyr Arg Ile Leu Arg Leu His Glu Asn Ala Asp Phe Gln Asp Thr  
 61 90 95 100

ENTERED

P.6

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126 aaaatatatg tattttata taatatctaa agttatattt cagatgtat gtttcttg 1617  
 127 caaagtattg taaattataat ttgtgctata gtatttgatt caaaatattt aaaaatgtct 1677  
 128 tgctgttgc atatttaatg ttttaatgt acagacatat ttaactggc cactttgtaa 1737  
 129 attccctggg gaaaacttgc agctaaggag gggaaaaaaa tgggtttcc taatatcaaa 1797  
 130 tgcagtatat ttcttcgttc ttttaagtt aatagattt ttcagacttg tcaaggctgt 1857  
 131 gcaaaaaat taaaatggat gccttgaata ataagcagga tggggccac caggtgcctt 1917  
 132 tcaaatttag aactaatttgc actttagaaa gctgacattt ccaaaaagga tacataatgg 1977  
 133 gccactgaaa tctgtcaaga gtagttat aatttgtgaa caggtgttt tccacaagtg 2037  
 134 ccgcaaatttgc tacctttttt ttttttcaa aatagaaaaag ttatttagtgg tttatcagca 2097  
 135 aaaaagtcca atttttaattt agtaaatgtt atcttataact gtacaataaa aacattgcct 2157  
 136 ttgaatgtta atttttggt aaaaaataa atttatatga aaacctgaaa aaaaaaaca 2217  
 137 aaaaaaaaaa 2226  
 139 <210> SEQ ID NO: 2  
 140 <211> LENGTH: 317  
 141 <212> TYPE: PRT  
 142 <213> ORGANISM: Homo sapiens  
 144 <400> SEQUENCE: 2  
 145 Met Arg Arg Ala Ser Arg Asp Tyr Thr Lys Tyr Leu Arg Gly Ser Glu  
 146 1 5 10 15  
 147 Glu Met Gly Gly Pro Gly Ala Pro His Glu Gly Pro Leu His Ala  
 148 20 25 30  
 149 Pro Pro Pro Ala Pro His Gln Pro Pro Ala Ala Ser Arg Ser Met  
 150 35 40 45  
 151 Phe Val Ala Leu Leu Gly Leu Gly Leu Gly Gln Val Val Cys Ser Val  
 152 50 55 60  
 153 Ala Leu Phe Phe Tyr Phe Arg Ala Gln Met Asp Pro Asn Arg Ile Ser  
 154 65 70 75 80  
 155 Glu Asp Gly Thr His Cys Ile Tyr Arg Ile Leu Arg Leu His Glu Asn  
 156 85 90 95  
 157 Ala Asp Phe Gln Asp Thr Thr Leu Glu Ser Gln Asp Thr Lys Leu Ile  
 158 100 105 110  
 159 Pro Asp Ser Cys Arg Arg Ile Lys Gln Ala Phe Gln Gly Ala Val Gln  
 160 115 120 125  
 161 Lys Glu Leu Gln His Ile Val Gly Ser Gln His Ile Arg Ala Glu Lys  
 162 130 135 140  
 163 Ala Met Val Asp Gly Ser Trp Leu Asp Leu Ala Lys Arg Ser Lys Leu  
 164 145 150 155 160  
 165 Glu Ala Gln Pro Phe Ala His Leu Thr Ile Asn Ala Thr Asp Ile Pro  
 166 165 170 175  
 167 Ser Gly Ser His Lys Val Ser Leu Ser Ser Trp Tyr His Asp Arg Gly  
 168 180 185 190  
 169 Trp Ala Lys Ile Ser Asn Met Thr Phe Ser Asn Gly Lys Leu Ile Val  
 170 195 200 205  
 171 Asn Gln Asp Gly Phe Tyr Tyr Leu Tyr Ala Asn Ile Cys Phe Arg His  
 172 210 215 220  
 173 His Glu Thr Ser Gly Asp Leu Ala Thr Glu Tyr Leu Gln Leu Met Val  
 174 225 230 235 240  
 175 Tyr Val Thr Lys Thr Ser Ile Lys Ile Pro Ser Ser His Thr Leu Met  
 176 245 250 255

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177 Lys Gly Gly Ser Thr Lys Tyr Trp Ser Gly Asn Ser Glu Phe His Phe  
 178 260 265 270  
 179 Tyr Ser Ile Asn Val Gly Gly Phe Phe Lys Leu Arg Ser Gly Glu Glu  
 180 275 280 285  
 181 Ile Ser Ile Glu Val Ser Asn Pro Ser Leu Leu Asp Pro Asp Gln Asp  
 182 290 295 300  
 183 Ala Thr Tyr Phe Gly Ala Phe Lys Val Arg Asp Ile Asp  
 184 305 310 315  
 186 <210> SEQ ID NO: 3  
 187 <211> LENGTH: 192  
 188 <212> TYPE: PRT  
 189 <213> ORGANISM: Homo Sapiens  
 191 <400> SEQUENCE: 3  
 192 Ala Val Gln Lys Glu Leu Gln His Ile Val Gly Ser Gln His Ile Arg  
 193 1 5 10 15  
 194 Ala Glu Lys Ala Met Val Asp Gly Ser Trp Leu Asp Leu Ala Lys Arg  
 195 20 25 30  
 196 Ser Lys Leu Glu Ala Gln Pro Phe Ala His Leu Thr Ile Asn Ala Thr  
 197 35 40 45  
 198 Asp Ile Pro Ser Gly Ser His Lys Val Ser Leu Ser Ser Trp Tyr His  
 199 50 55 60  
 200 Asp Arg Gly Trp Ala Lys Ile Ser Asn Met Thr Phe Ser Asn Gly Lys  
 201 65 70 75 80  
 202 Leu Ile Val Asn Gln Asp Gly Phe Tyr Tyr Leu Tyr Ala Asn Ile Cys  
 203 85 90 95  
 204 Phe Arg His His Glu Thr Ser Gly Asp Leu Ala Thr Glu Tyr Leu Gln  
 205 100 105 110  
 206 Leu Met Val Tyr Val Thr Lys Thr Ser Ile Lys Ile Pro Ser Ser His  
 207 115 120 125  
 208 Thr Leu Met Lys Gly Gly Ser Thr Lys Tyr Trp Ser Gly Asn Ser Glu  
 209 130 135 140  
 210 Phe His Phe Tyr Ser Ile Asn Val Gly Gly Phe Phe Lys Leu Arg Ser  
 211 145 150 155 160  
 212 Gly Glu Glu Ile Ser Ile Glu Val Ser Asn Pro Ser Leu Leu Asp Pro  
 213 165 170 175  
 214 Asp Gln Asp Ala Thr Tyr Phe Gly Ala Phe Lys Val Arg Asp Ile Asp  
 215 180 185 190  
 217 <210> SEQ ID NO: 4  
 218 <211> LENGTH: 181  
 219 <212> TYPE: PRT  
 220 <213> ORGANISM: Homo sapiens  
 222 <400> SEQUENCE: 4  
 223 Ser Gln His Ile Arg Ala Glu Lys Ala Met Val Asp Gly Ser Trp Leu  
 224 1 5 10 15  
 225 Asp Leu Ala Lys Arg Ser Lys Leu Glu Ala Gln Pro Phe Ala His Leu  
 226 20 25 30  
 227 Thr Ile Asn Ala Thr Asp Ile Pro Ser Gly Ser His Lys Val Ser Leu  
 228 35 40 45  
 229 Ser Ser Trp Tyr His Asp Arg Gly Trp Ala Lys Ile Ser Asn Met Thr

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 Output Set: N:\CRF4\04212004\I933915A.raw

230 50 55 60  
 231 Phe Ser Asn Gly Lys Leu Ile Val Asn Gln Asp Gly Phe Tyr Tyr Leu  
 232 65 70 75 80  
 233 Tyr Ala Asn Ile Cys Phe Arg His His Glu Thr Ser Gly Asp Leu Ala  
 234 85 90 95  
 235 Thr Glu Tyr Leu Gln Leu Met Val Tyr Val Thr Lys Thr Ser Ile Lys  
 236 100 105 110  
 237 Ile Pro Ser Ser His Thr Leu Met Lys Gly Gly Ser Thr Lys Tyr Trp  
 238 115 120 125  
 239 Ser Gly Asn Ser Glu Phe His Phe Tyr Ser Ile Asn Val Gly Gly Phe  
 240 130 135 140  
 241 Phe Lys Leu Arg Ser Gly Glu Glu Ile Ser Ile Glu Val Ser Asn Pro  
 242 145 150 155 160  
 243 Ser Leu Leu Asp Pro Asp Gln Asp Ala Thr Tyr Phe Gly Ala Phe Lys  
 244 165 170 175  
 245 Val Arg Asp Ile Asp  
 246 180  
 248 <210> SEQ ID NO: 5  
 249 <211> LENGTH: 178  
 250 <212> TYPE: PRT  
 251 <213> ORGANISM: Homo sapiens  
 253 <400> SEQUENCE: 5  
 254 Ile Arg Ala Glu Lys Ala Met Val Asp Gly Ser Trp Leu Asp Leu Ala  
 255 1 5 10 15  
 256 Lys Arg Ser Lys Leu Glu Ala Gln Pro Phe Ala His Leu Thr Ile Asn  
 257 20 25 30  
 258 Ala Thr Asp Ile Pro Ser Gly Ser His Lys Val Ser Leu Ser Ser Trp  
 259 35 40 45  
 260 Tyr His Asp Arg Gly Trp Ala Lys Ile Ser Asn Met Thr Phe Ser Asn  
 261 50 55 60  
 262 Gly Lys Leu Ile Val Asn Gln Asp Gly Phe Tyr Tyr Leu Tyr Ala Asn  
 263 65 70 75 80  
 264 Ile Cys Phe Arg His His Glu Thr Ser Gly Asp Leu Ala Thr Glu Tyr  
 265 85 90 95  
 266 Leu Gln Leu Met Val Tyr Val Thr Lys Thr Ser Ile Lys Ile Pro Ser  
 267 100 105 110  
 268 Ser His Thr Leu Met Lys Gly Gly Ser Thr Lys Tyr Trp Ser Gly Asn  
 269 115 120 125  
 270 Ser Glu Phe His Phe Tyr Ser Ile Asn Val Gly Gly Phe Phe Lys Leu  
 271 130 135 140  
 272 Arg Ser Gly Glu Glu Ile Ser Ile Glu Val Ser Asn Pro Ser Leu Leu  
 273 145 150 155 160  
 274 Asp Pro Asp Gln Asp Ala Thr Tyr Phe Gly Ala Phe Lys Val Arg Asp  
 275 165 170 175  
 276 Ile Asp  
 279 <210> SEQ ID NO: 6  
 280 <211> LENGTH: 173  
 281 <212> TYPE: PRT  
 282 <213> ORGANISM: Homo sapiens

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 04/21/2004  
PATENT APPLICATION: US/09/933,915A TIME: 07:09:45

Input Set : A:\07917-120001.txt  
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base Note:

3 of n and/or Xaa have been detected in the Sequence Listing. Please review the  
Sequence Listing to ensure that a corresponding explanation is presented in the <220>  
<223> fields of each sequence which presents at least one n or Xaa.

J# : 9; N Pos. 4, 9, 12

**VERIFICATION SUMMARY**

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375 M:258 W: Mandatory Feature missing, &lt;220&gt; Tag not found for SEQ ID#:9

376 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:0